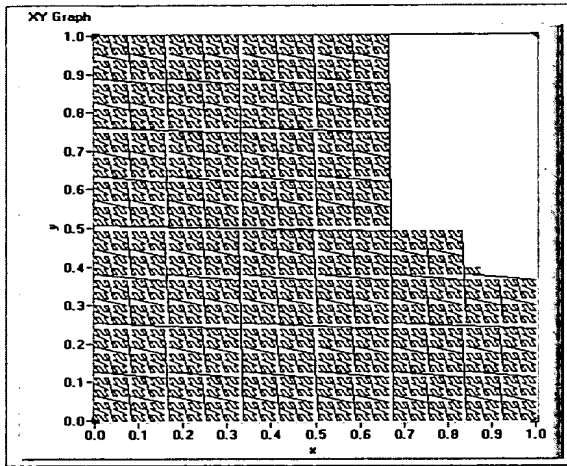
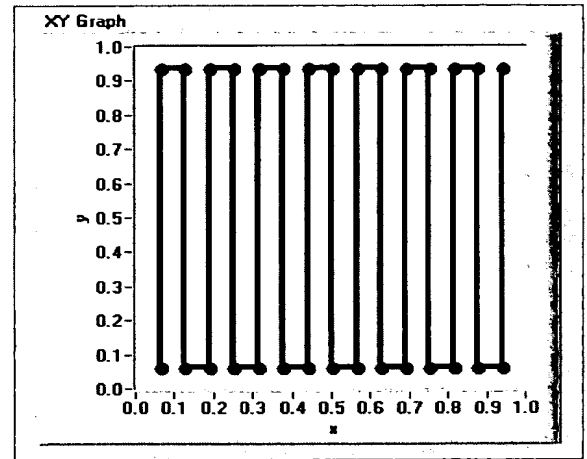


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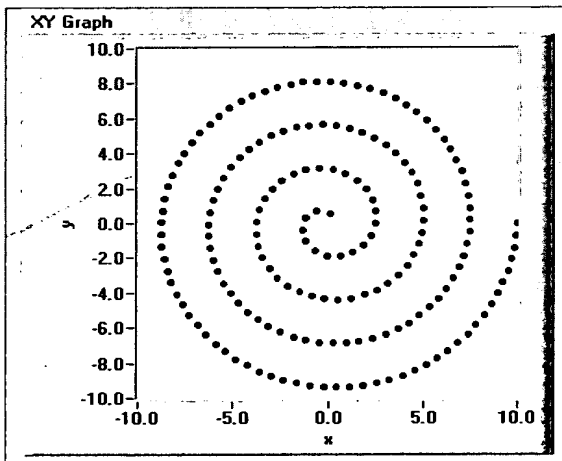
Approximated Peano Curve. The space-filling process has not been completed.

Figure 1A (Prior Art)



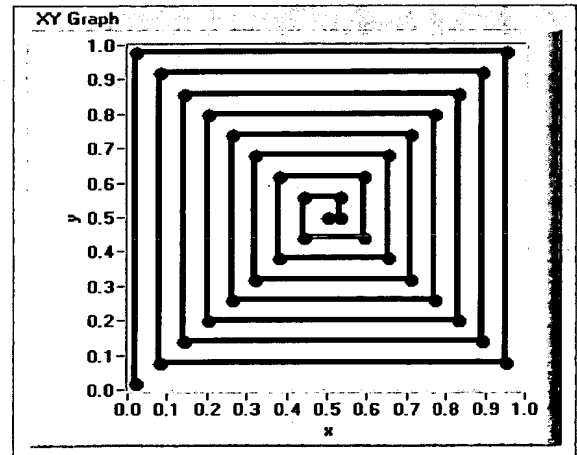
Boustrophedon Path

Figure 1B (Prior Art)



Archimedes Spiral defined by equally distributed points

Figure 1C (Prior Art)



Spiral-like line-based scanning

Figure 1D (Prior Art)

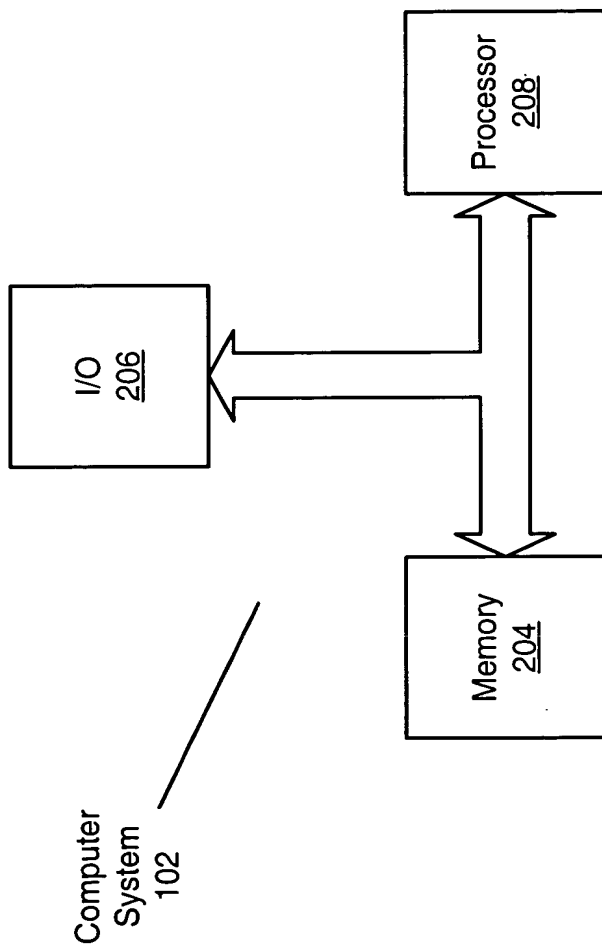


Figure 2B

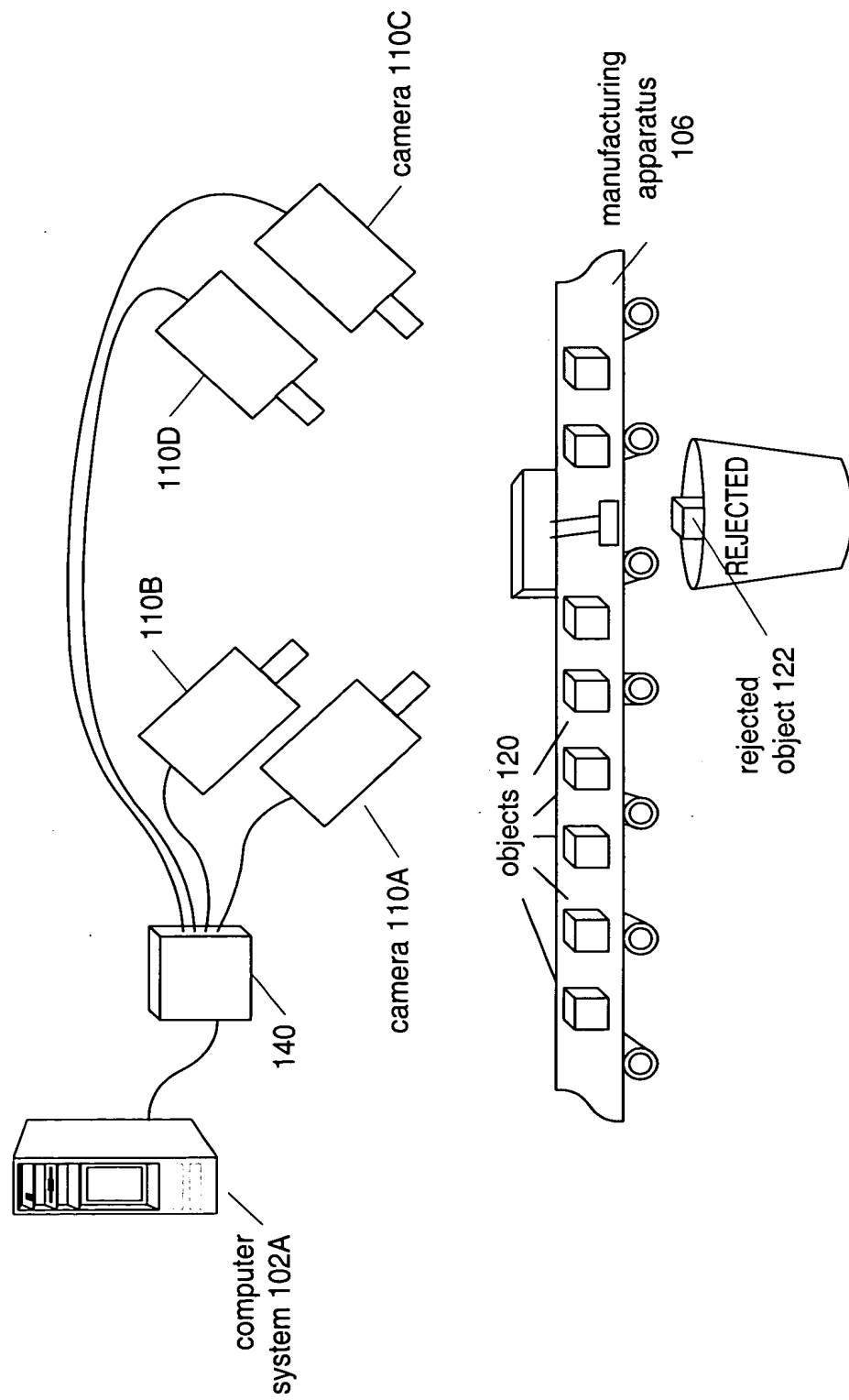


Figure 3A

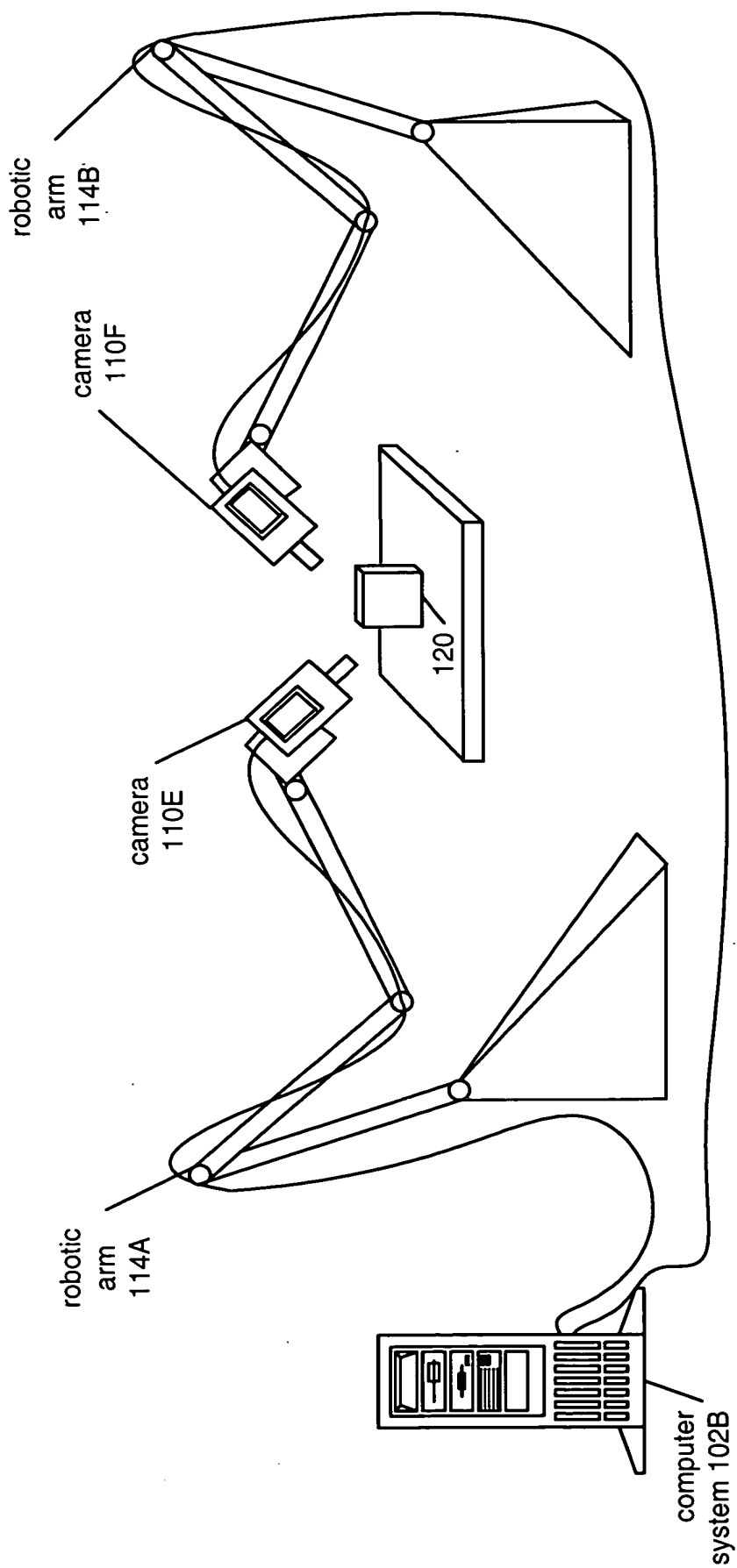


Figure 3B

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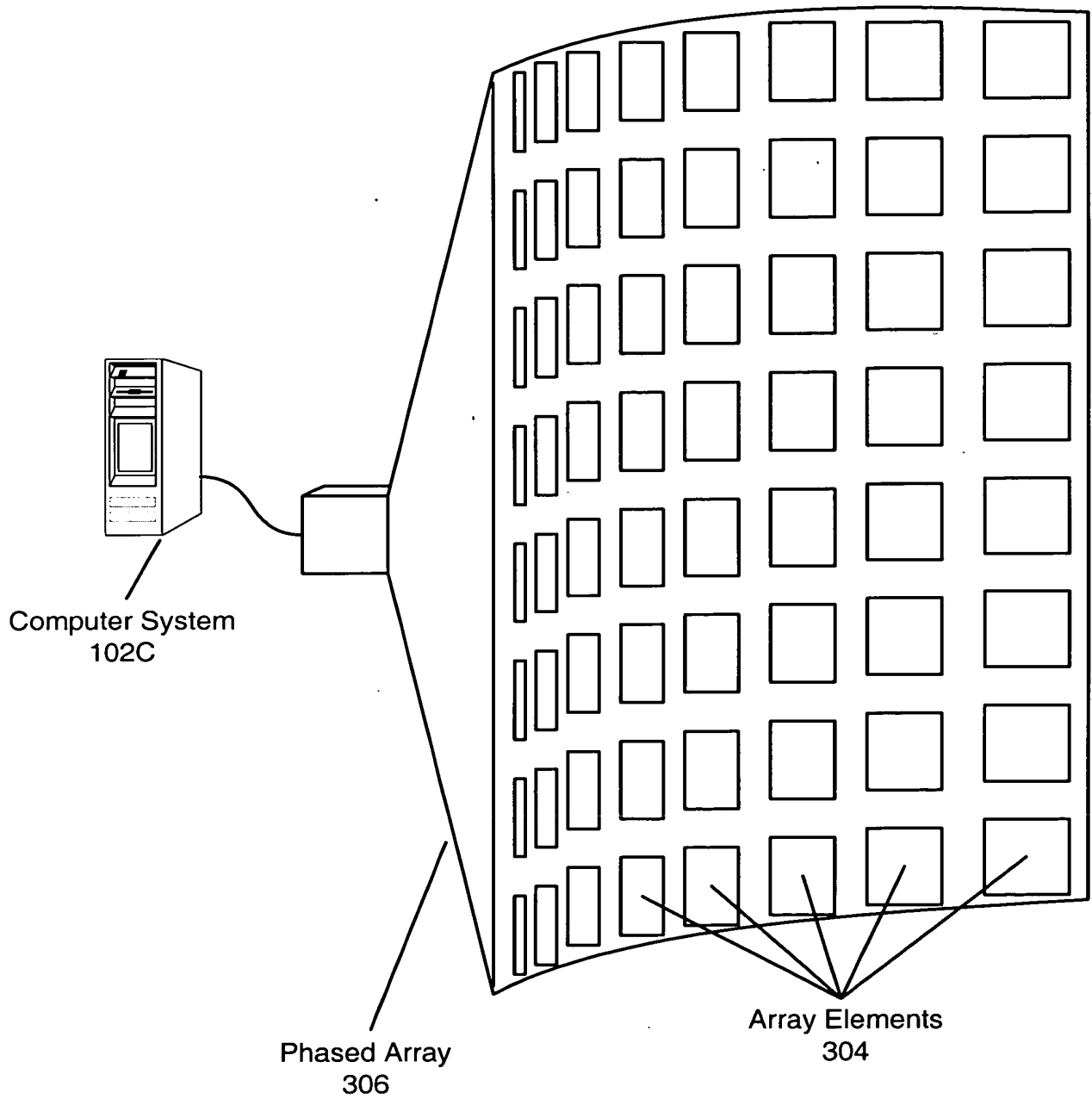


Figure 3C

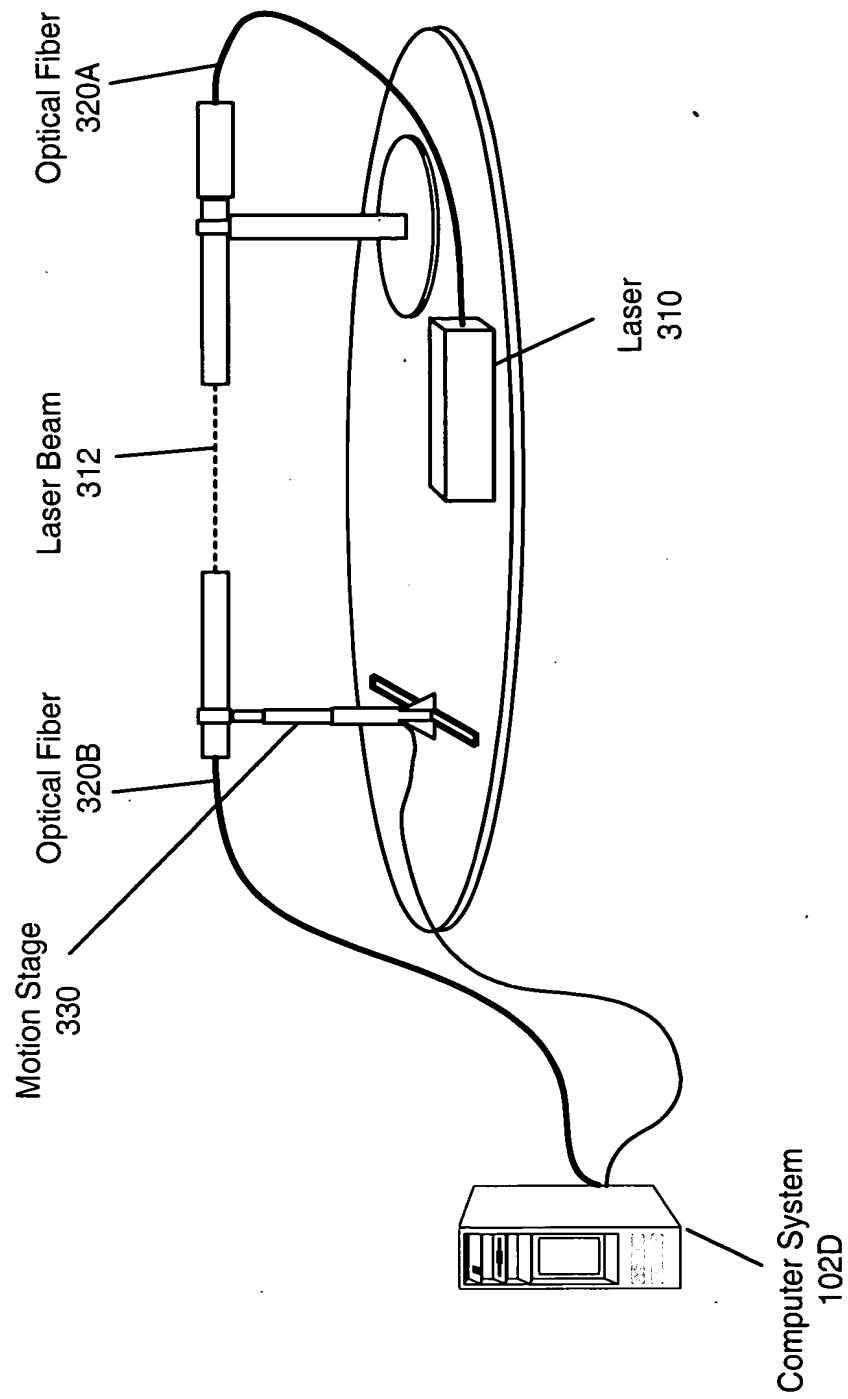
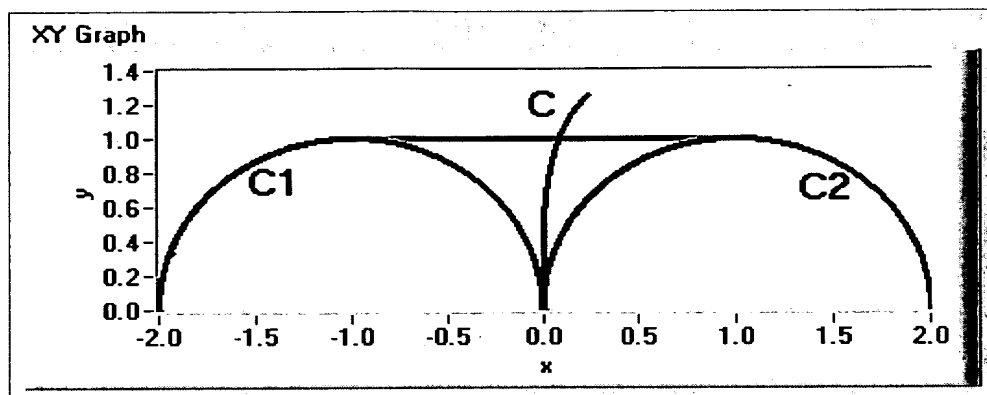


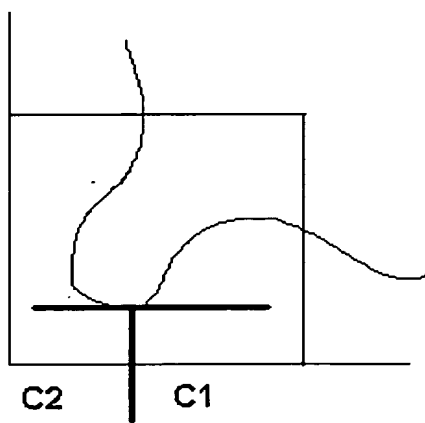
Figure 3D

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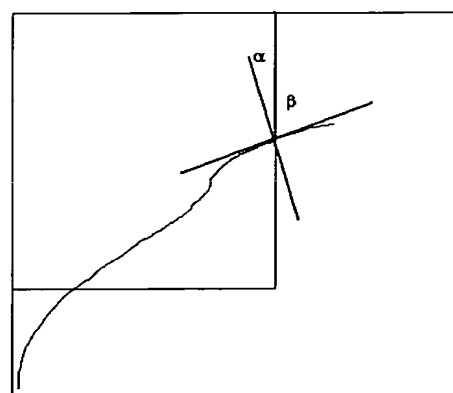
The situation of Lemma 1

Figure 4A



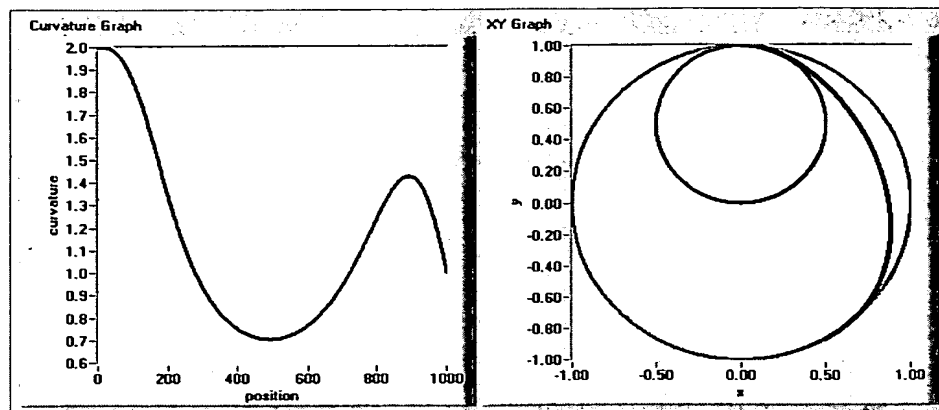
Case (A)

Figure 4B

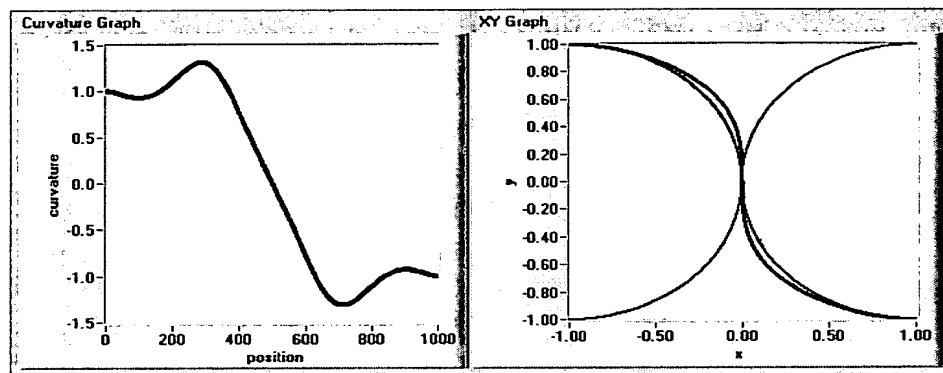


Case (B)

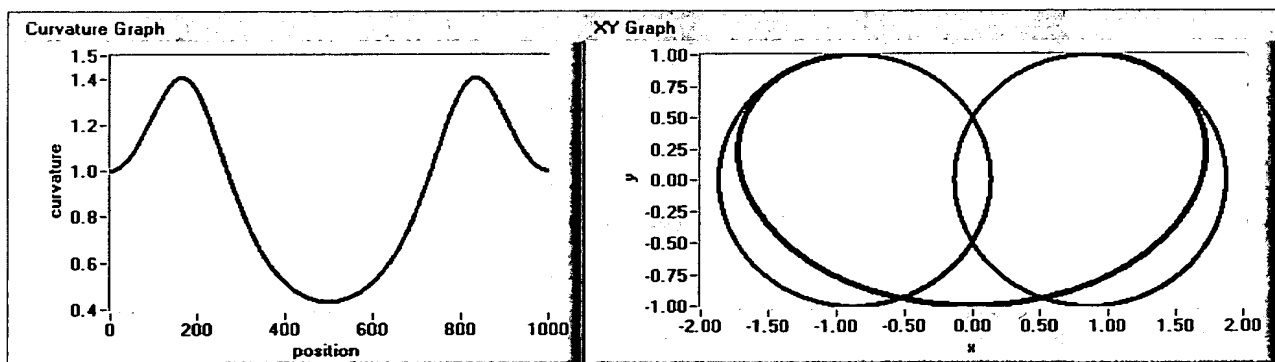
Figure 4C



Smooth transition between two circles of different radii.
Figure 4D



Smooth transition between two circles of same radius.
Figure 4E

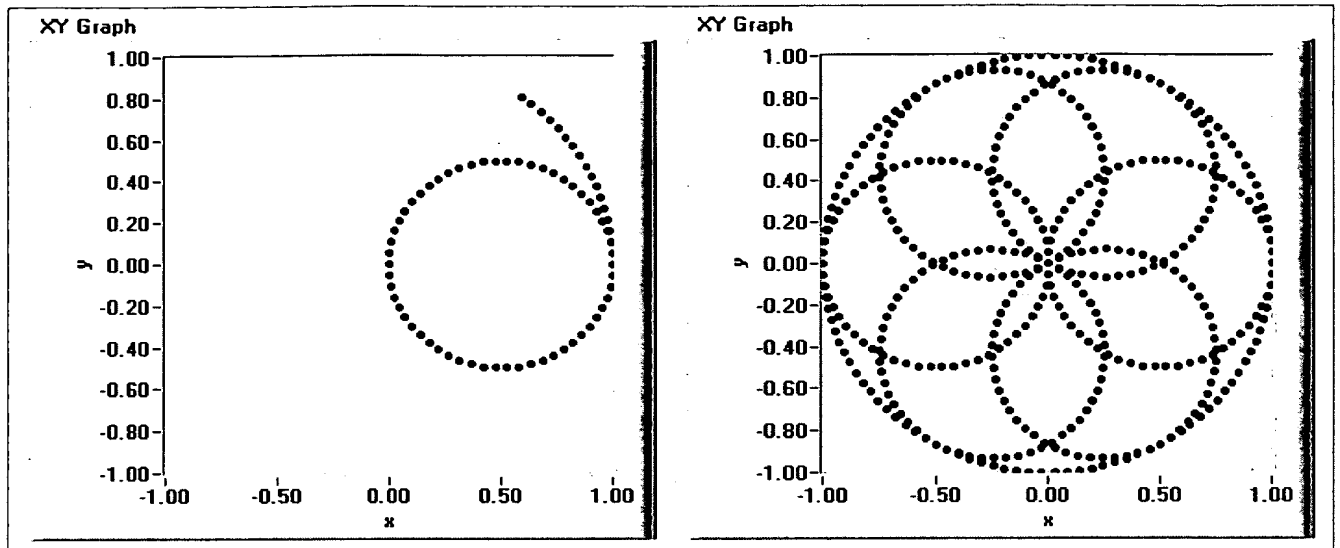


Transition between two unit circles of radius 1. The distance between the circles is $\sqrt{3}$

Figure 4F

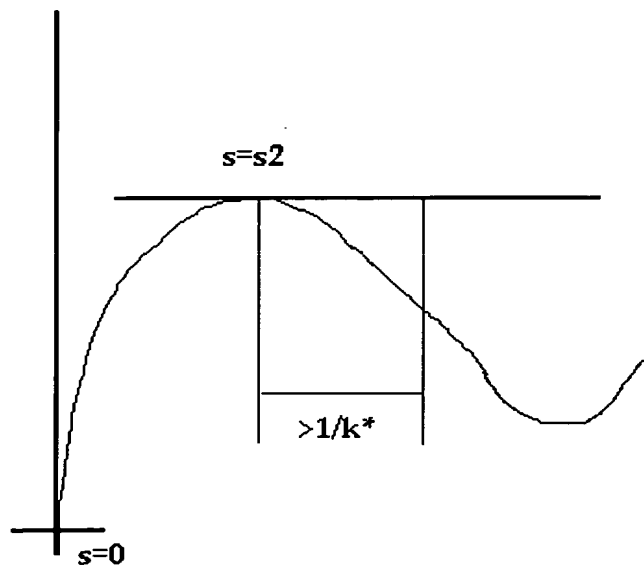
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Beginning (left) and completion (right) of a scanning scheme where the curvature is below a certain value

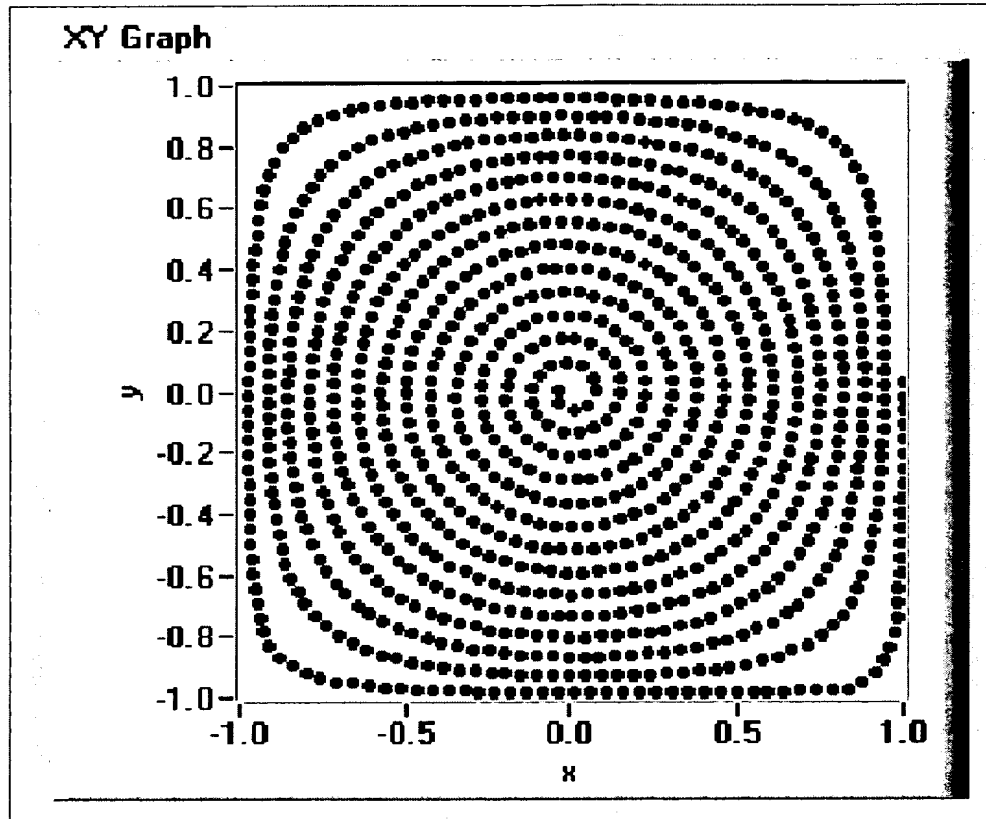
Figure 5A



Construction of s_2 and the subsequent part of the curve

Figure 5B

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Conformal Spiral.

Figure 6

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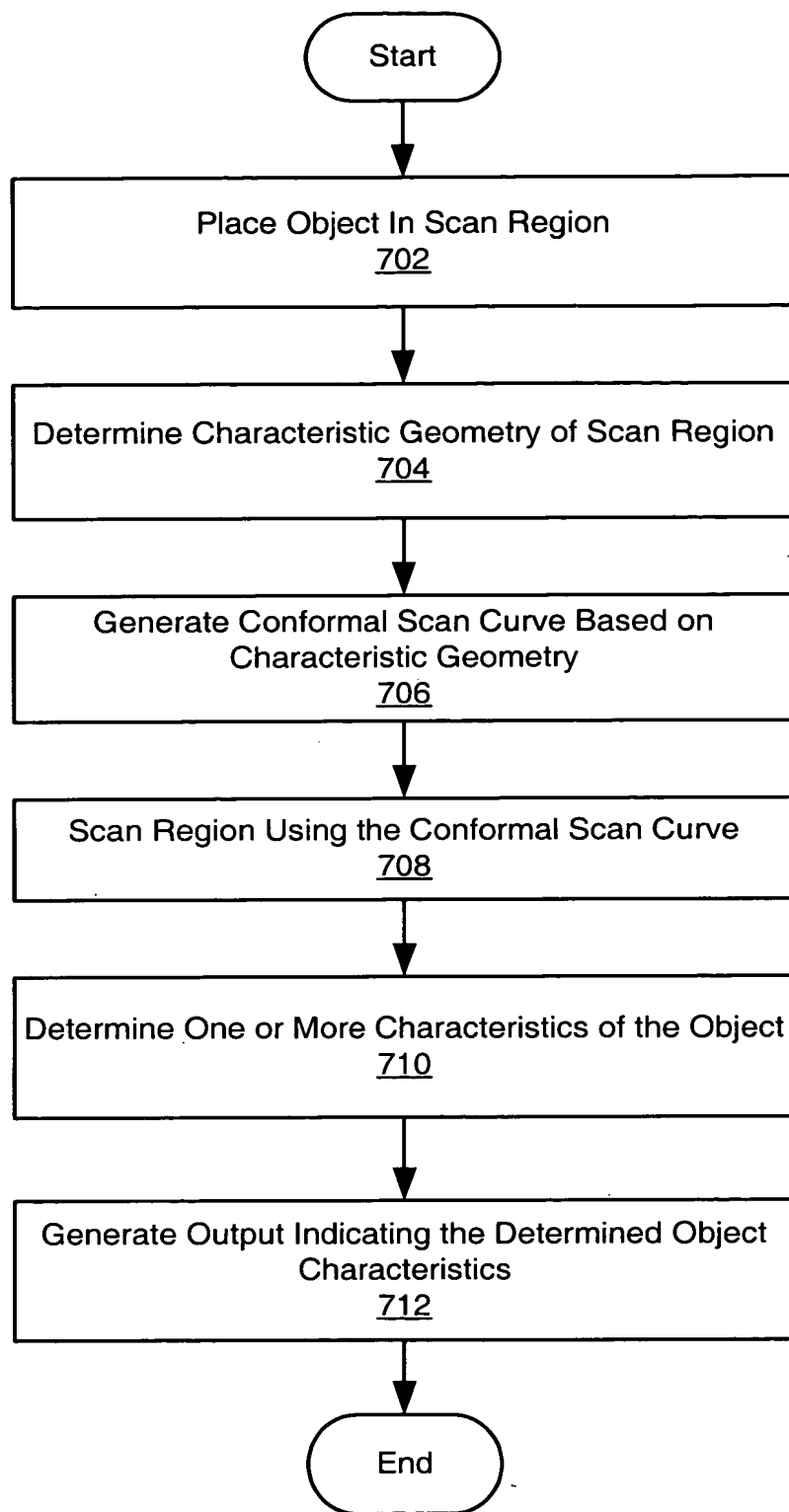
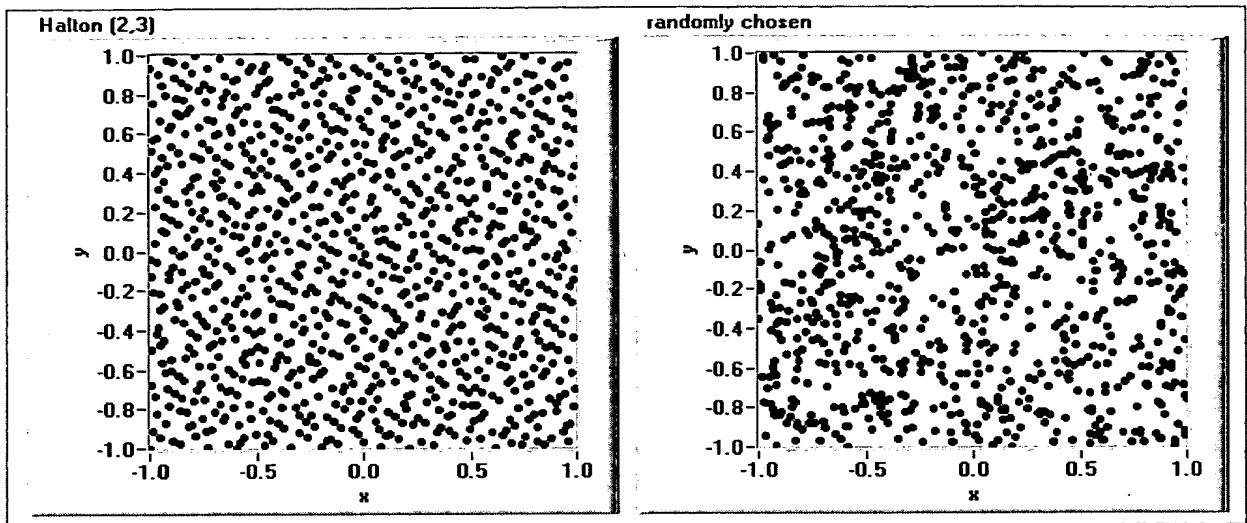
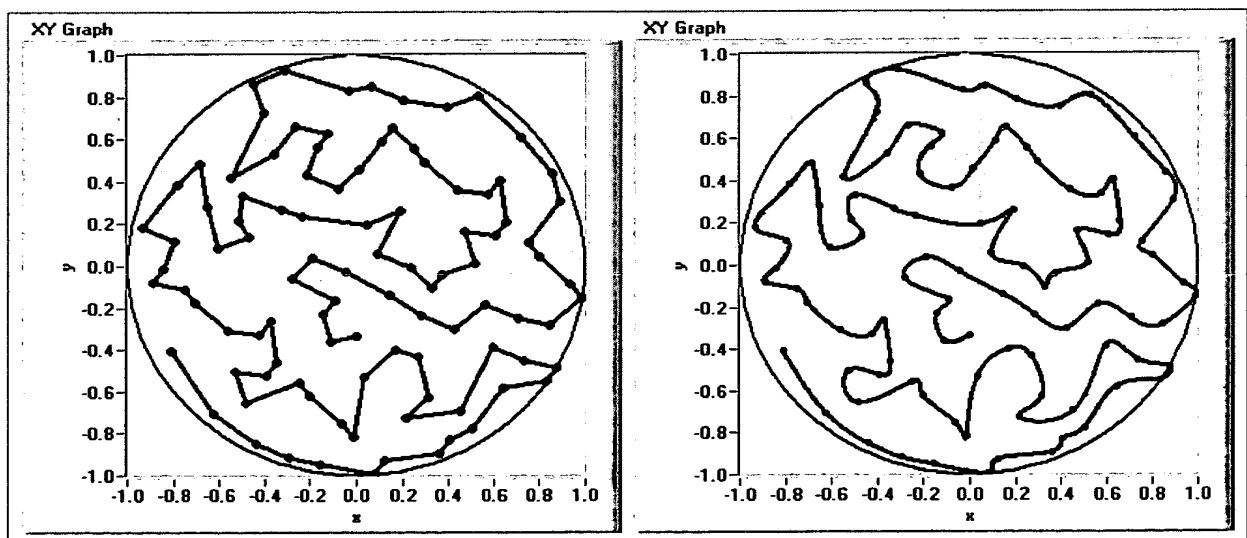


Figure 07



The first 1000 Halton points (left) and randomly chosen points (right)

Figure 8A



Original solution (left) and splined version (right).

Figure 8B

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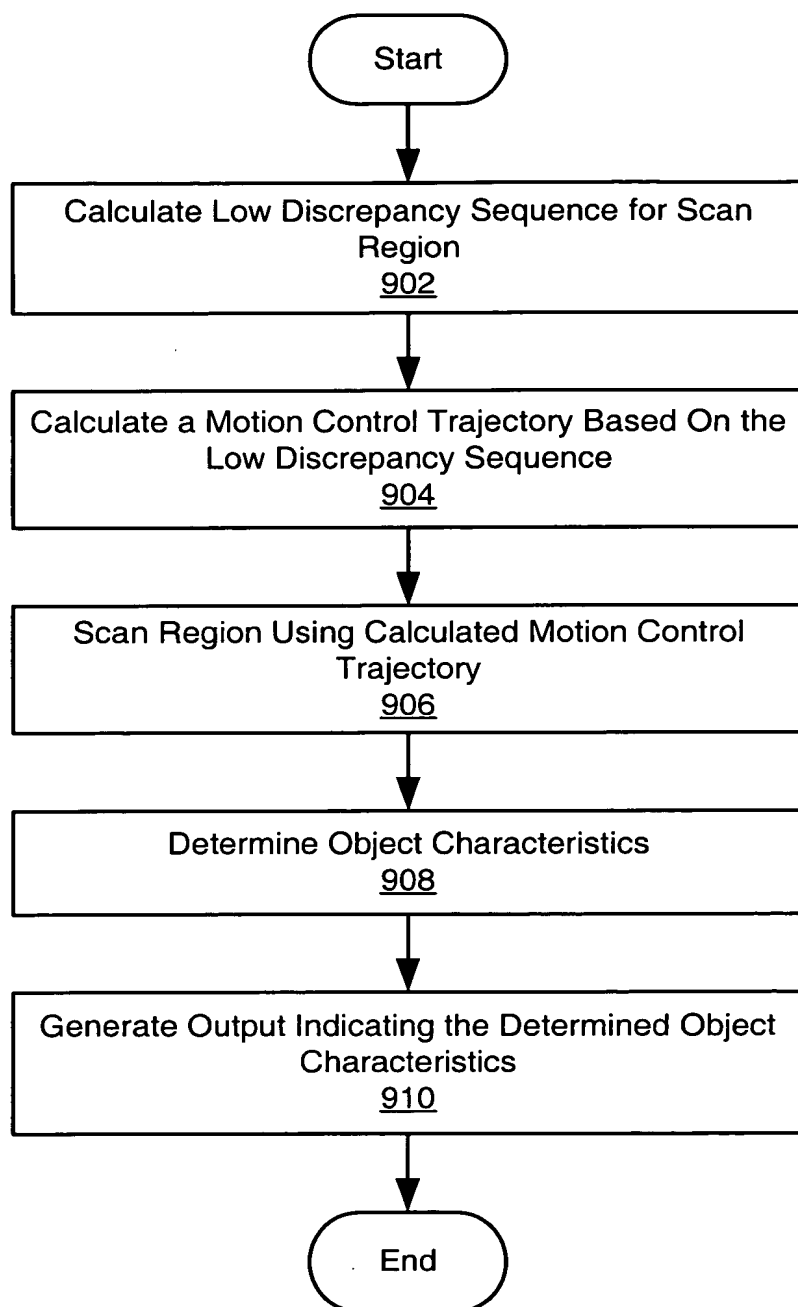
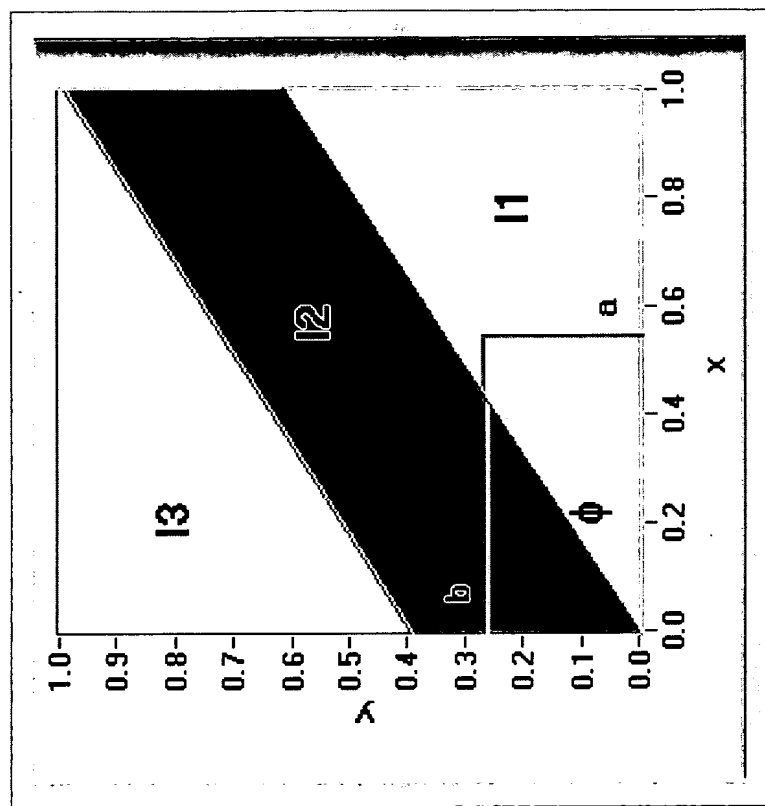


Figure 9



Definition of I_1 , I_2 , and I_3

Figure 10

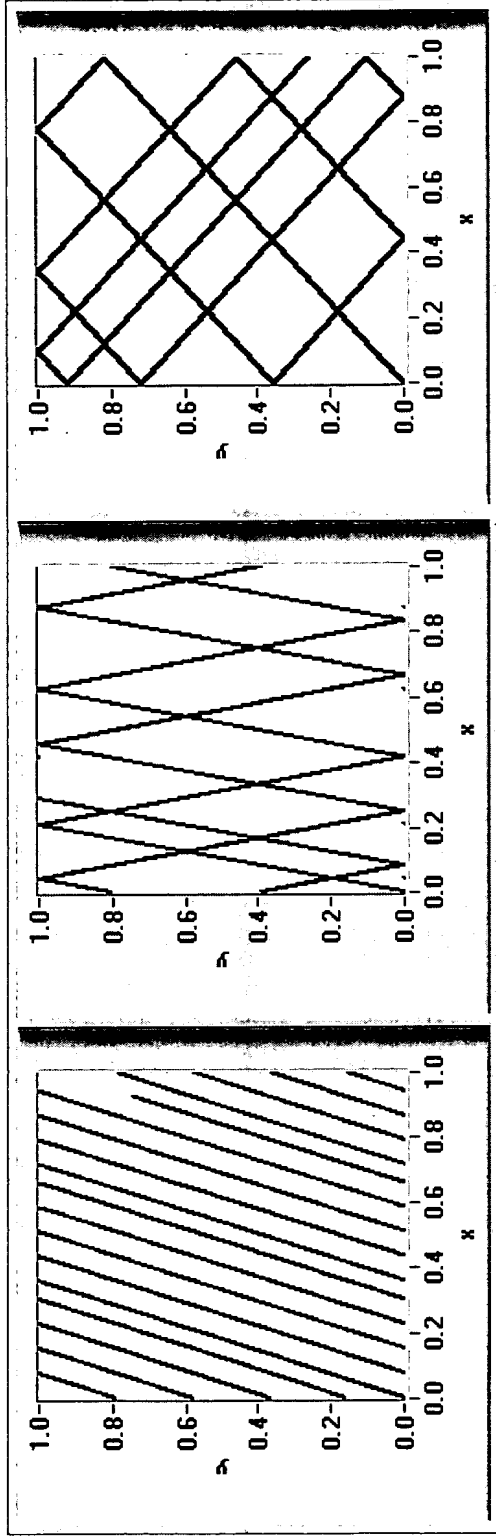


Figure 11A

Figure 11B

Figure 11C


```
graph TD; 1222[Generate Unbounded Low Discrepancy Point  
1222] --> 1224[Apply Boundary Conditions to the Unbounded Low  
Discrepancy Point to Generate a Bounded Low  
Discrepancy Point in a Region  
1224]; 1224 --> 1226{Done?  
1226}; 1226 -- No --> 1222; 1226 -- Yes --> 1228[Store Generated Low Discrepancy Sequence of  
Points Representing a Low Discrepancy Curve in the  
Region  
1228]; 1228 --> 1230[Output Generated Low Discrepancy Sequence of  
Points Representing the Low Discrepancy Curve  
1230];
```

Generate Unbounded Low Discrepancy Point
1222

Apply Boundary Conditions to the Unbounded Low
Discrepancy Point to Generate a Bounded Low
Discrepancy Point in a Region
1224

Done?
1226

No

Yes

Store Generated Low Discrepancy Sequence of
Points Representing a Low Discrepancy Curve in the
Region
1228

Output Generated Low Discrepancy Sequence of
Points Representing the Low Discrepancy Curve
1230

Figure 12A

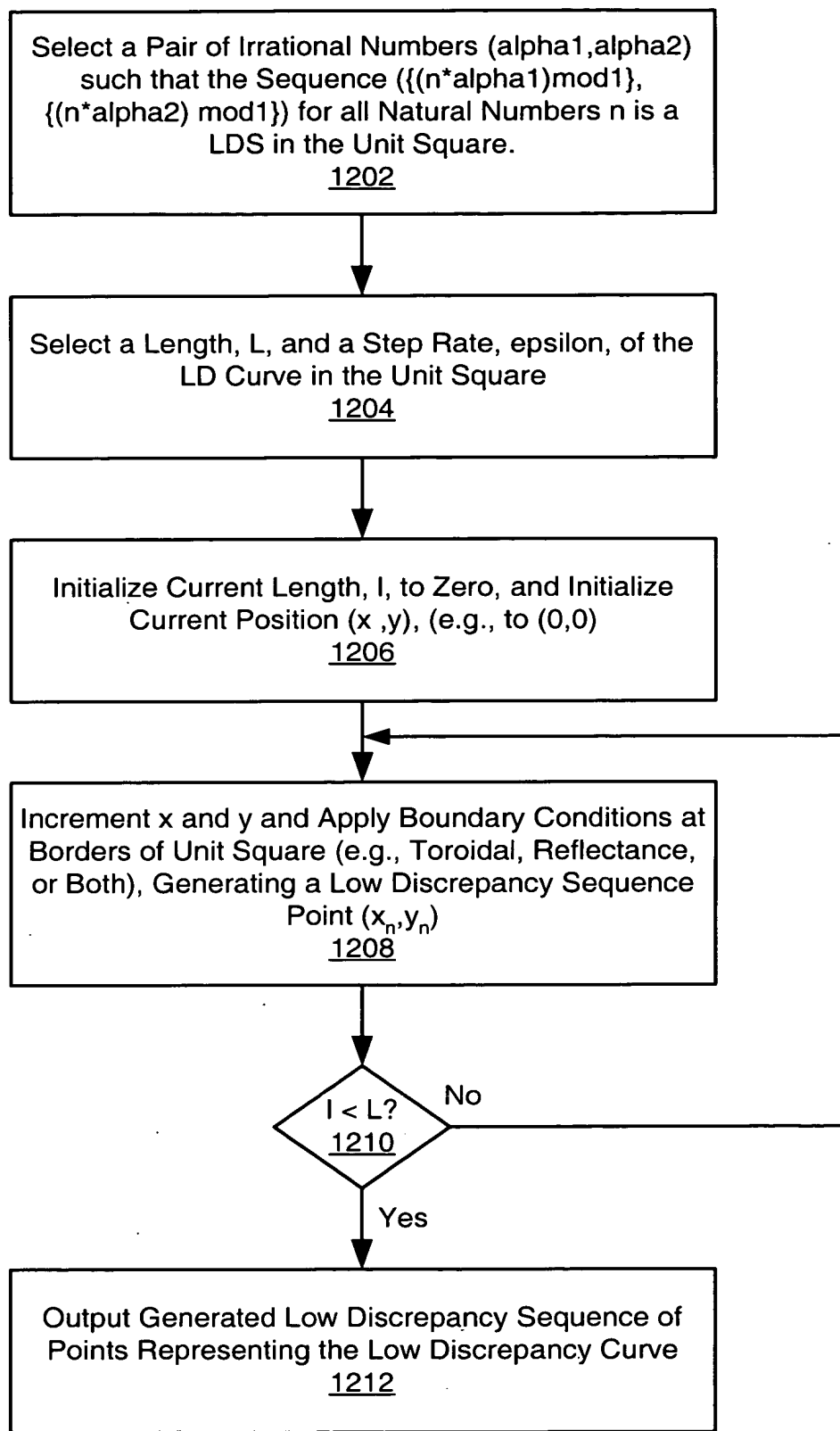
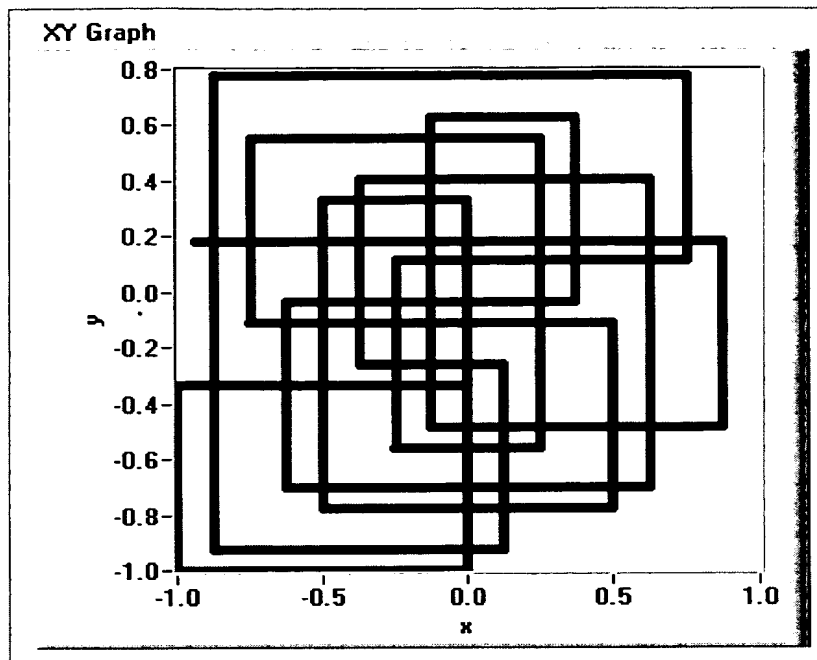


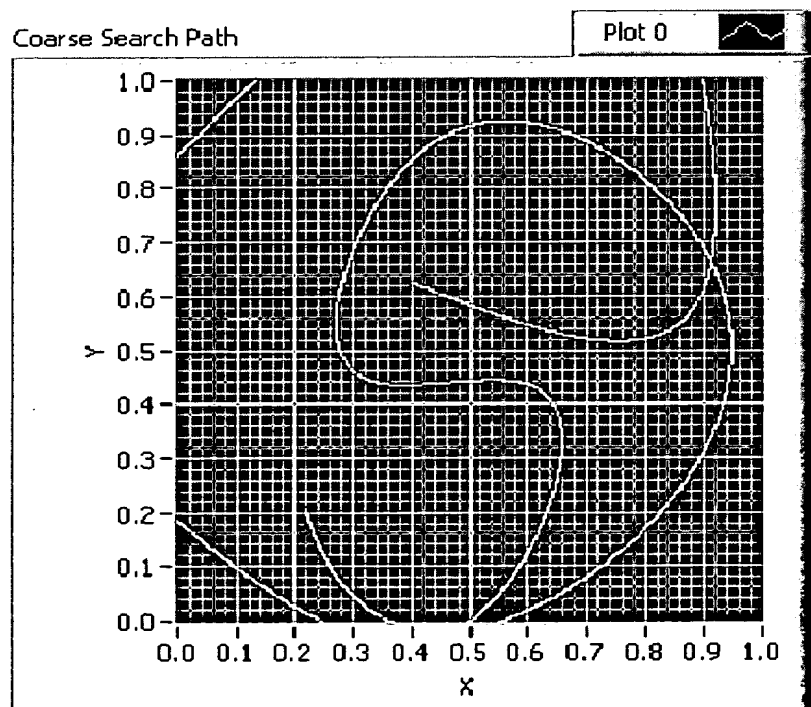
Figure 12B

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Beginning of a Low Discrepancy Curve based on a specific Halton Sequence in 2d

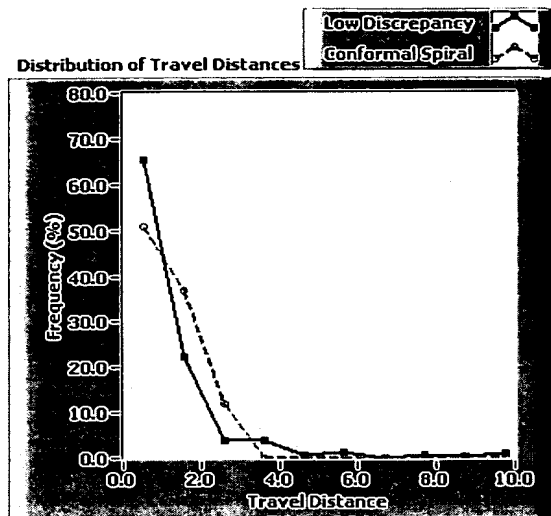
Figure 13A



Splined Low Discrepancy Curve coarse search

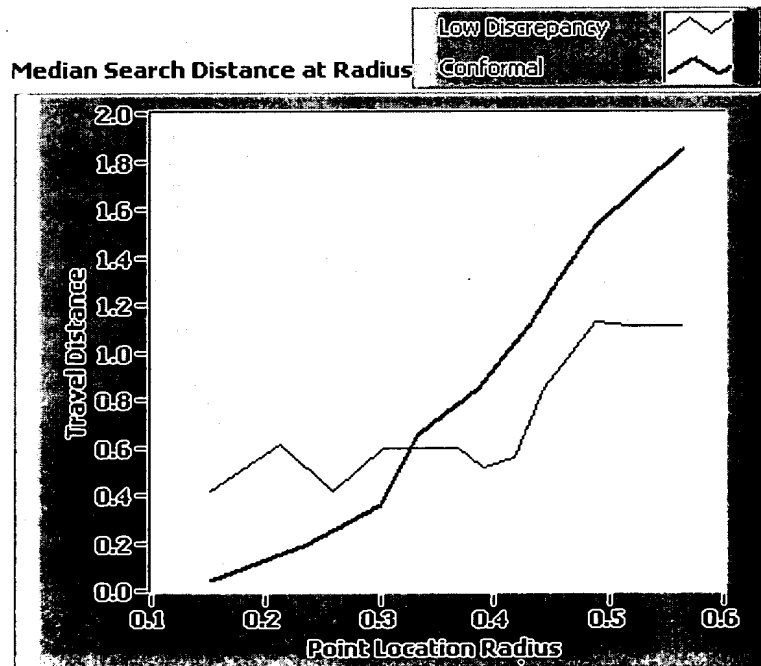
Figure 13B

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Comparison of Conformal Spiral and Low Discrepancy Searching

Figure 13C



Comparison of Travel Distance for Low Discrepancy Search and Conformal Spiral Search

Figure 13D

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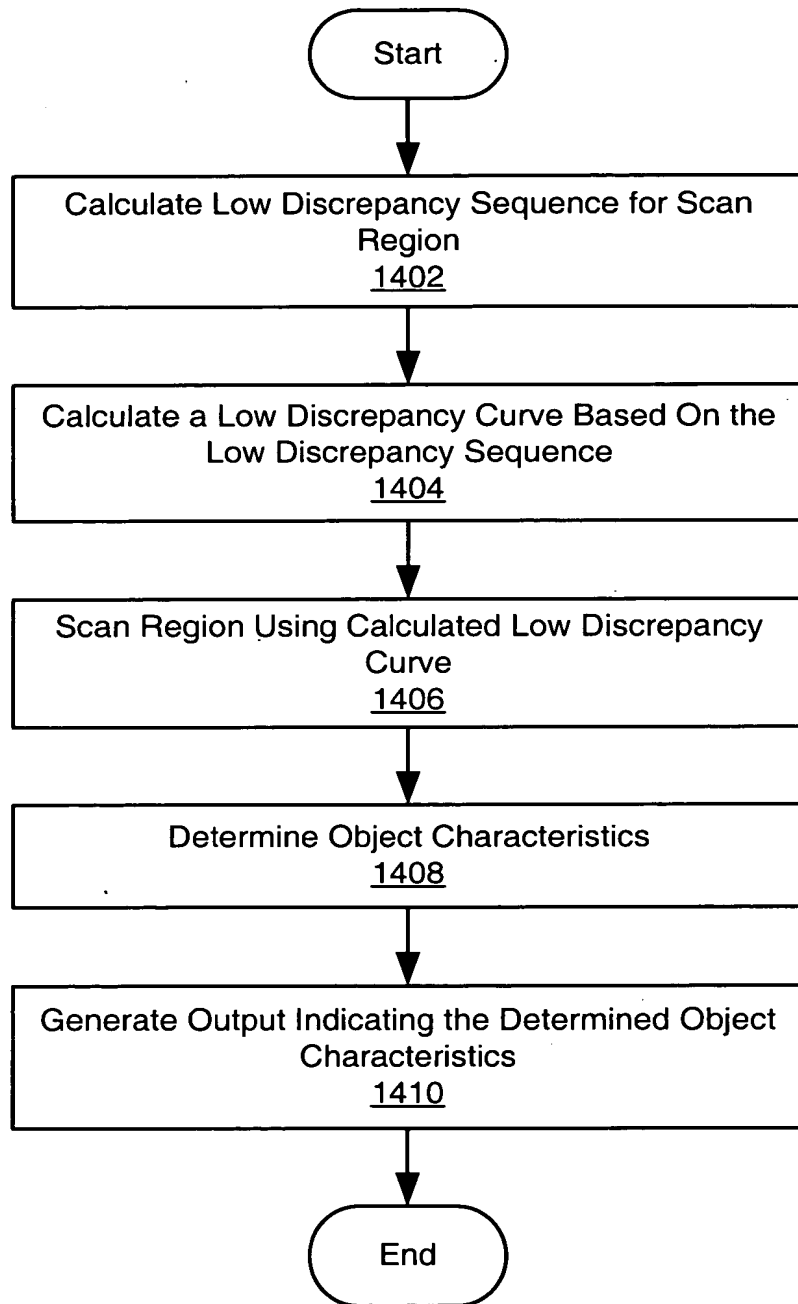
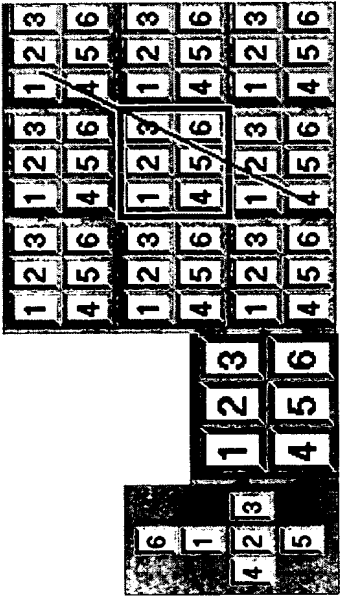


Figure 14

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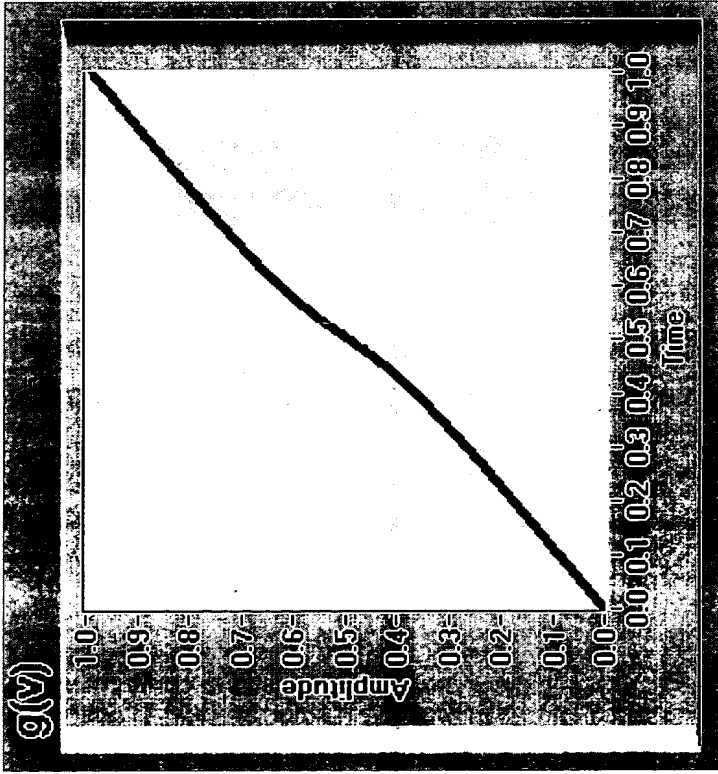
Tiling of the plane and relation to the surface of the unit cube



Low-discrepancy curve in a ring

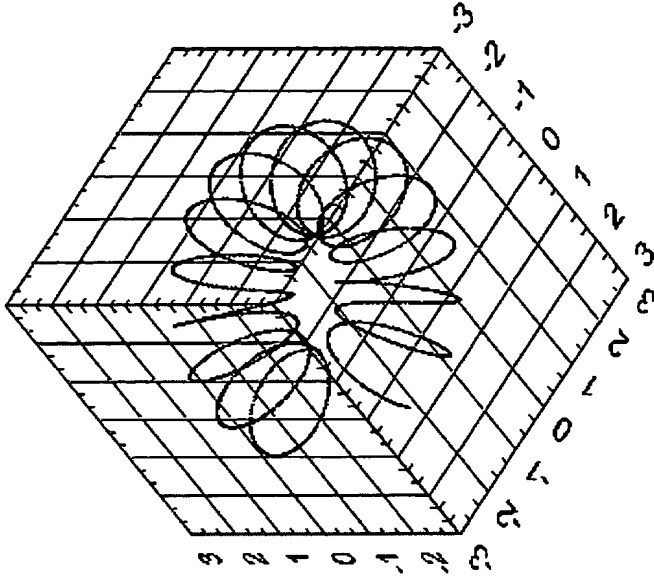
Figure 15A

Figure 15B



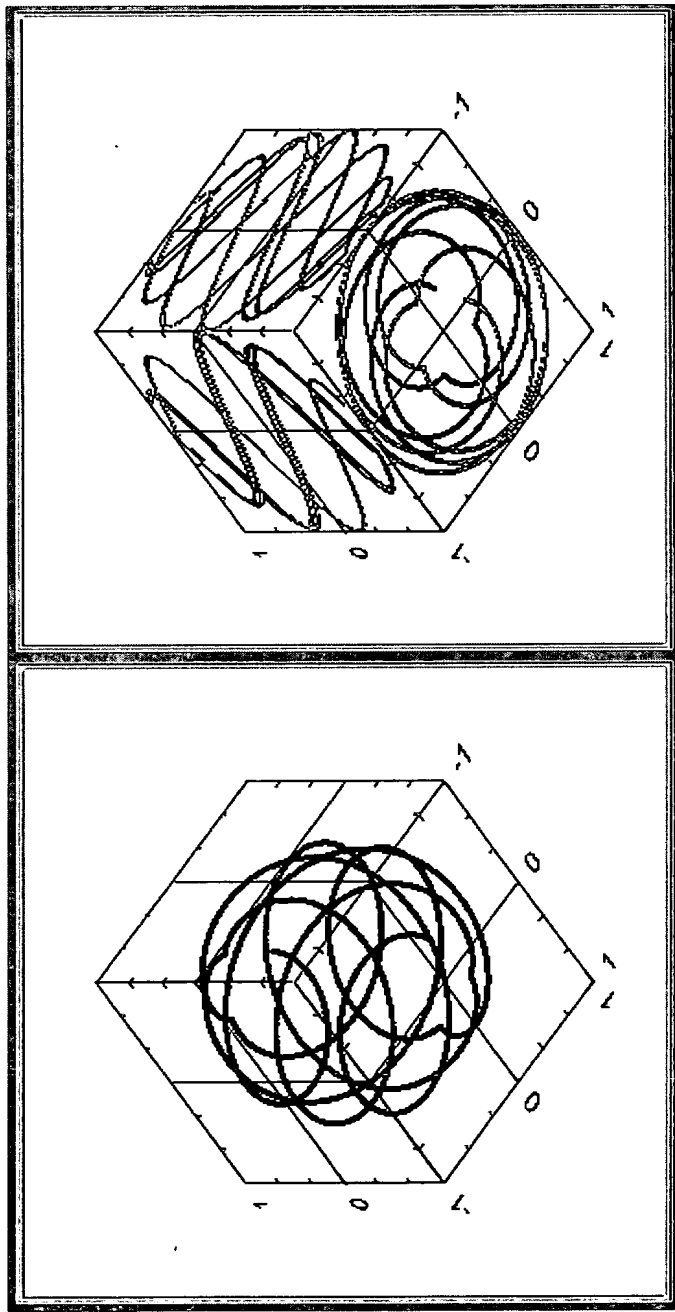
Low Discrepancy Preserving Mapping Function

Figure 15C



Low-discrepancy curve filling the surface of a torus

Figure 15D



Low-discrepancy curve on a sphere
(left) and projections (right)

Figure 16

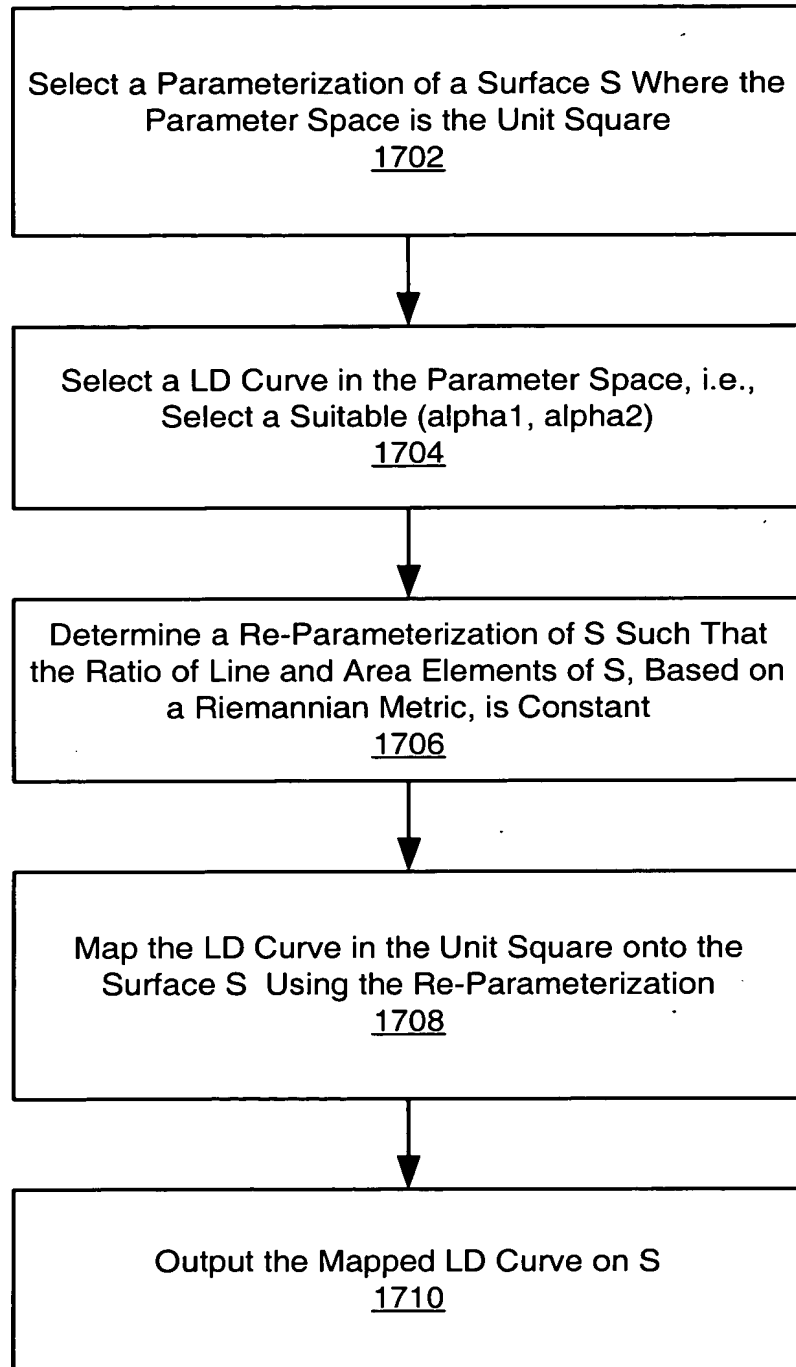
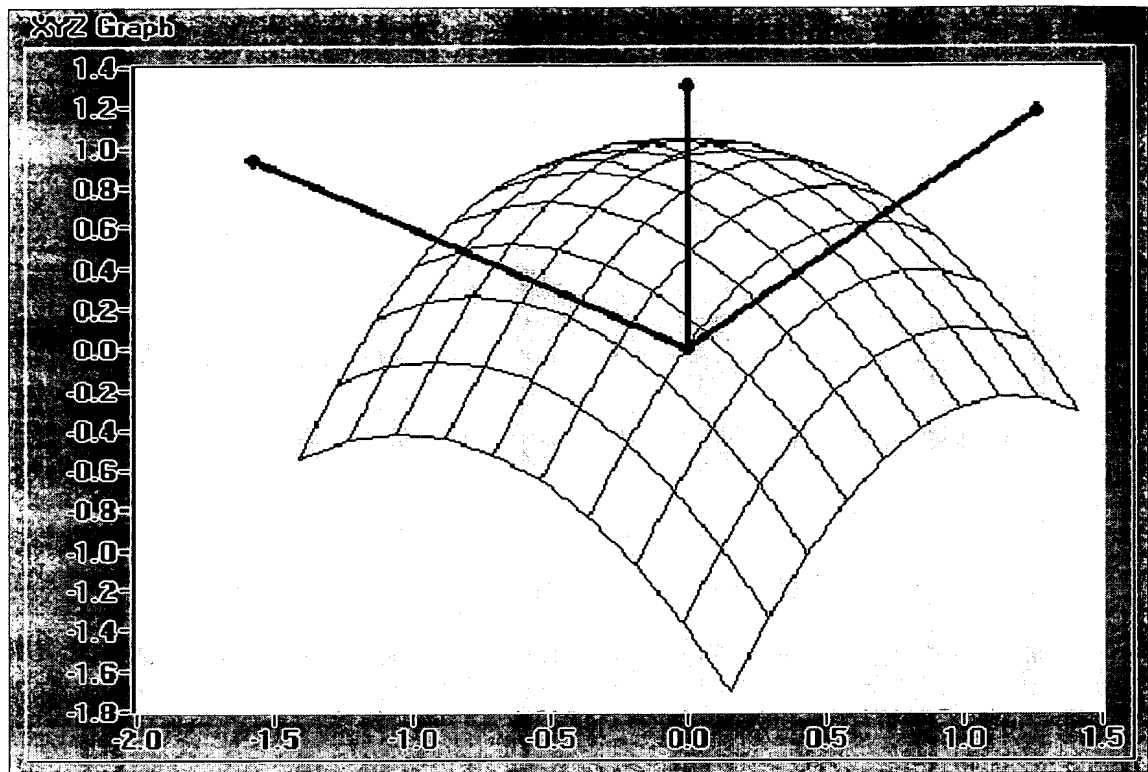


Figure 17

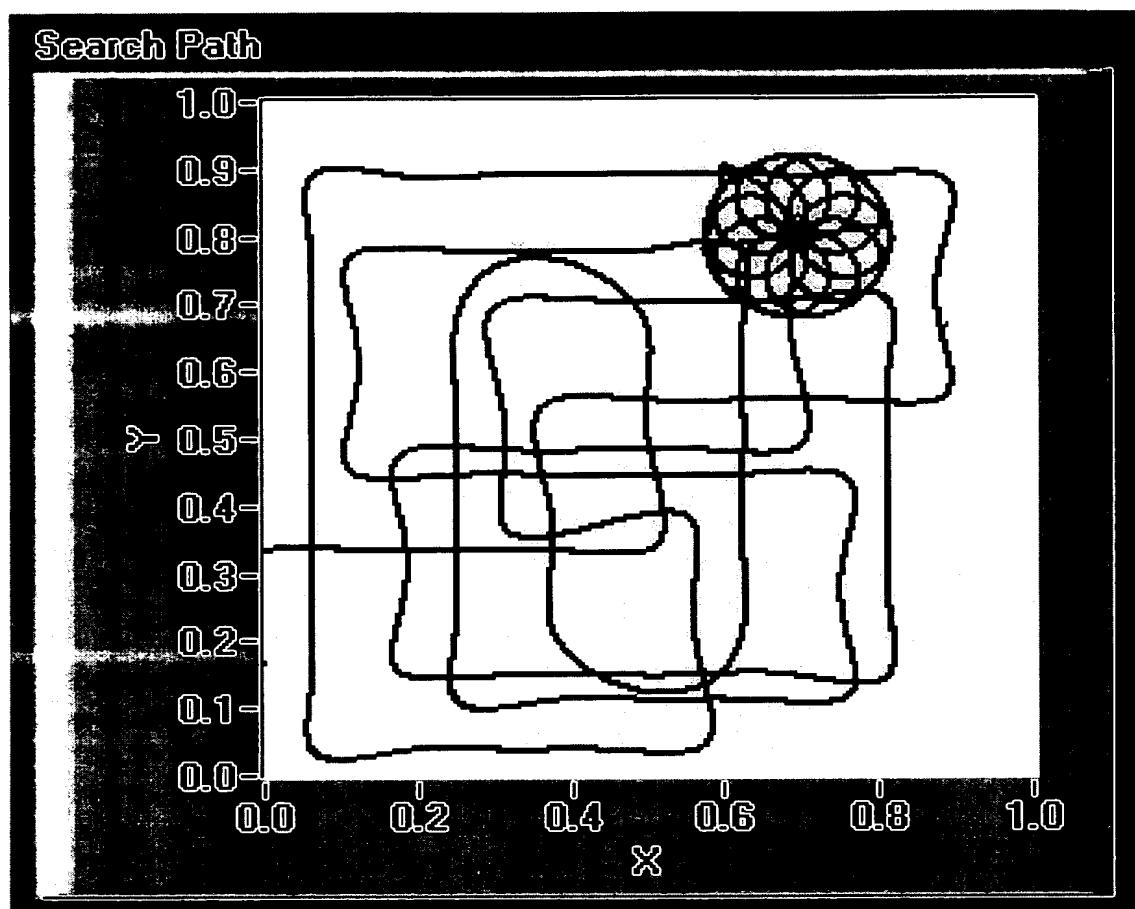
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Surfaces can be scanned efficiently when the term low discrepancy sequence/ curve can be generalized, e.g. based on metrics on the surface.

Figure 18

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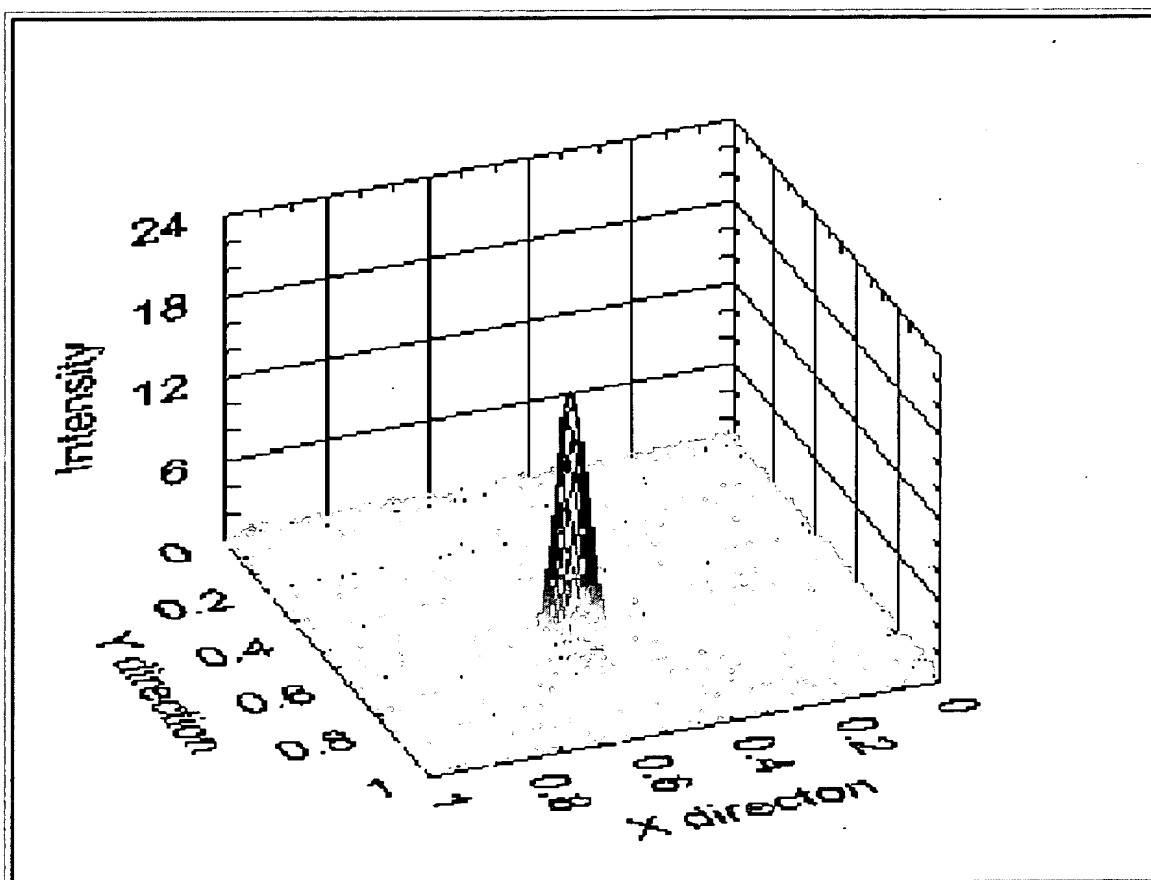


Splined Low Discrepancy Curve coarse search with refined final approach

Figure 19

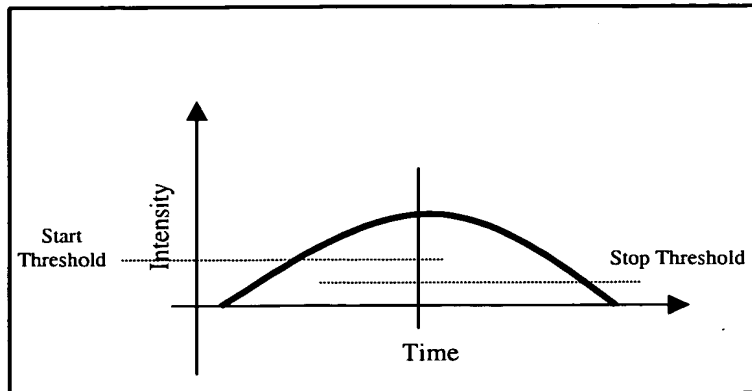
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Intensity Field Distribution in Search Area

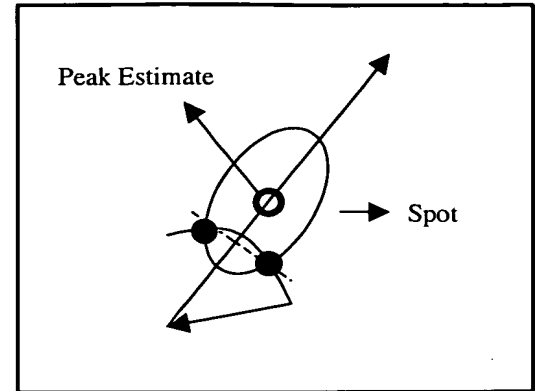


Beam intensity distribution in search area

Figure 20



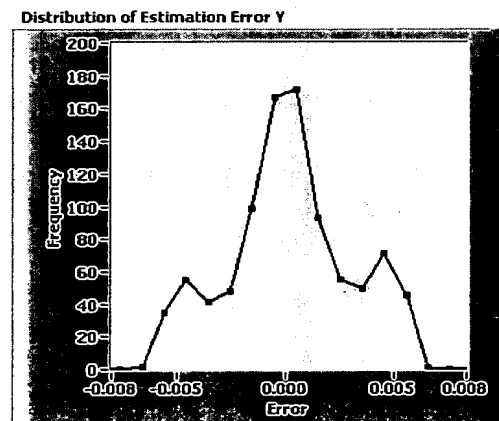
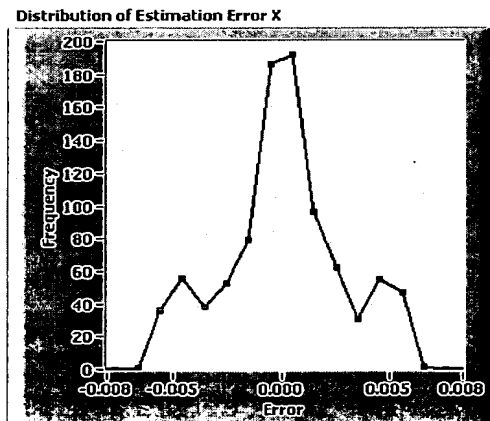
Location of the Peak



Initial Final Approach Move

Figure 21A

Figure 21B



Error distribution of the estimated peak X coordinate error (left) and Y coordinate error (right)

Figure 21C

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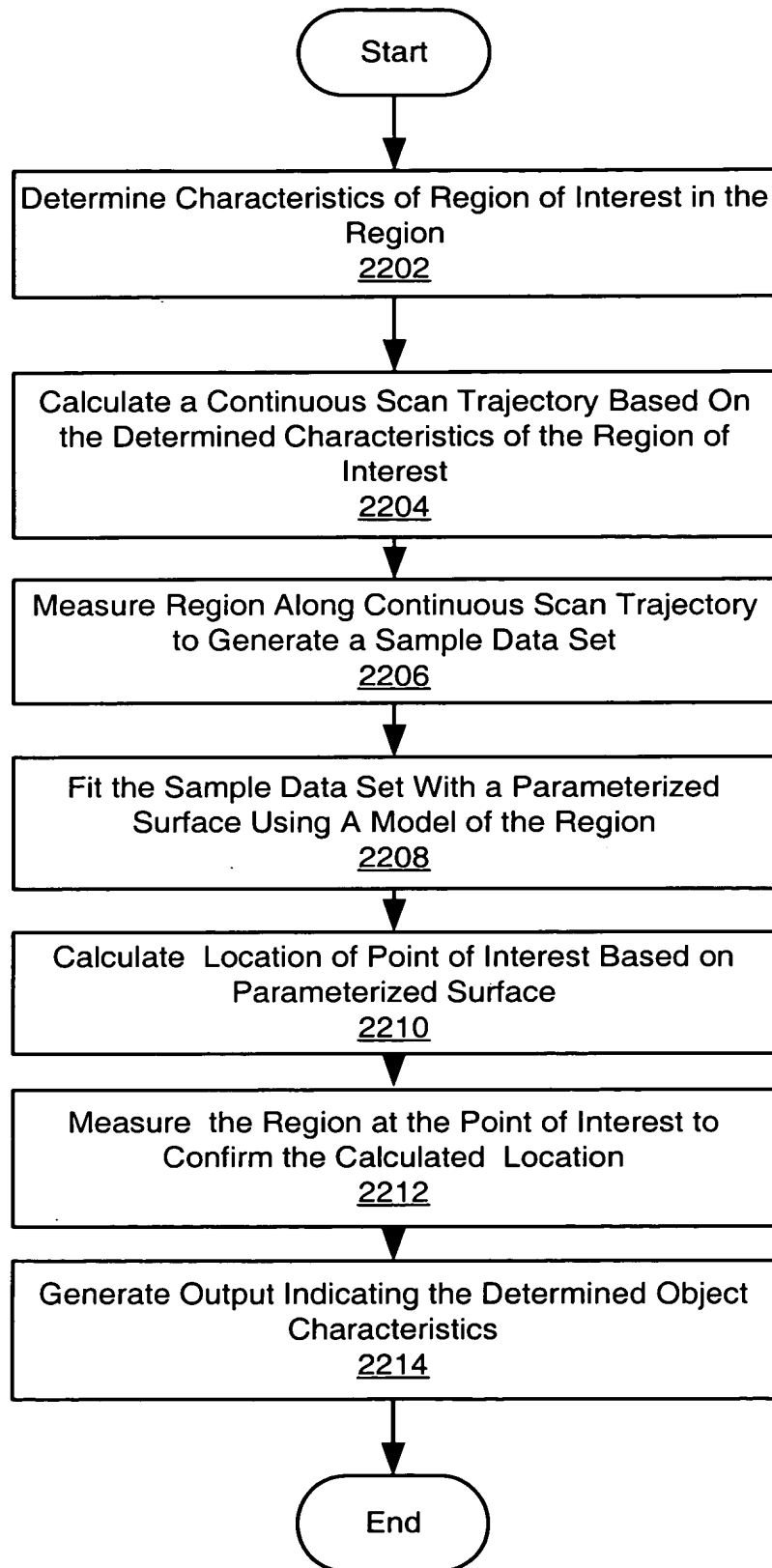


Figure 22

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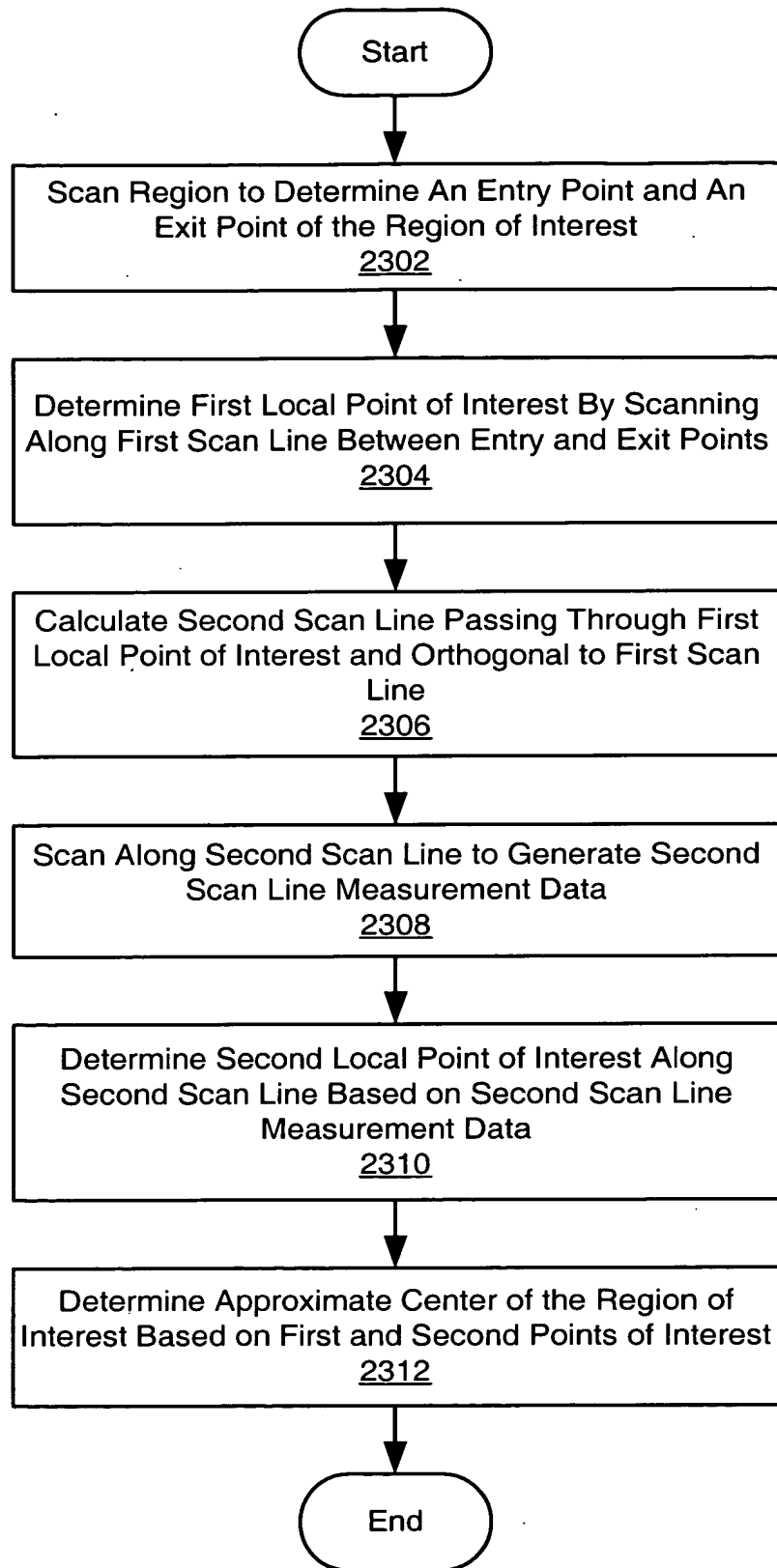


Figure 23